

Barnard Chemistry Department Newsletter August 1996

Greetings once again to alumnae and friends from the Barnard Chemistry Department. We enjoy this opportunity to keep in touch with you and to give you our news, and we hope we can help your keeping in touch with each other. Keep those notes and letters and visits coming!

NEWS OF THE COLLEGE

Many big changes and improvements are under way in the physical facilities for the sciences at Barnard. A large grant from the **National Science Foundation** and another from the **Howard Hughes Medical Institute** will support the renovations. The various animal care facilities in Psychology will be improved and brought into compliance with federal standards. Environmental Sciences will move into Altschul, with offices and laboratories on the 4th floor as well as space for introductory laboratories on the 6th floor. This will be a big upgrade. Mathematics and Sociology will move into the vacated space that Environmental Sciences leaves in Milbank. Physics and Environmental Sciences will share a new computerized classroom on the 5th floor. Chemistry is giving up some laboratory space on the 6th floor to Environmental Sciences, in return for extensive remodeling of the rest of our laboratory space on that floor. We will incorporate the now wasted central hallway into the laboratory, and join all the rooms on that floor, including the computer facility, into a large, multifunctional biochemistry and physical chemistry laboratory space. Finally, Biology will get renovated neurobiology and animal physiology facilities.

Our new Dean of the Faculty, **Elizabeth Boylan**, has been very much a part of supporting the grant proposals, planning the changes we want, and helping move the process along. It has been a pleasure to work with her. Deploying budgets effectively and reaching useful and effective compromises on space require special skills, and these Liz has in abundance.

An unfortunate development this spring has been a strike of clerical and support staff, members of Local 2110 of the UAW, primarily over issues regarding health care benefits. The dispute and the positions of both the college and the union are far too tangled and have shifted too much over time to summarize here. It is enough to say that the situation is a most unhappy one, I think for both sides. All of us would like to see the strike settled as soon as possible so we can all go back to work at full strength and with the positive attitudes that make Barnard the exciting and forward-moving place that it is and must remain.

NEWS OF THE DEPARTMENT

The biggest news of the department is not at all happy. Professor **Marco Pagnotta** was denied tenure in chemistry. The department supported his candidacy, but the committee charged with deciding tenure cases turned us down. This must have been a very painful and difficult decision for the committee, which had to take into account all the factors given weight in applications for tenure, and which gave long and careful consideration to all the supporting materials and evaluations. The chair of the department presents the case to the committee, but the committee's internal discussions and debates remain confidential, for good reasons. Although we are confident that the committee reached its decision fairly and on grounds it felt supported its judgment, the loss of Professor Pagnotta is nevertheless a heavy blow to the department, and means our future plans must move in different directions than we had anticipated. Professor Pagnotta is searching for another job, and we will have to hire another organic chemist during the next year. We all wish Marco the very best in finding a job where his immense talents and his delightful personality will be put to best use. I know of no one as gifted as Marco in teaching organic chemistry.

On a brighter note, the Chemistry Department was very grateful to receive an additional \$10,000 gift from **Bristol-Myers Squibb** for the purchase of a lyophilizer (freeze-dryer) for the biochemistry laboratory. We will be spending a further large sum, about \$45,000, to purchase more equipment for the biochemistry laboratory, since this fall the course will have a much bigger enrollment than ever, perhaps 16 students. We simply need more of everything. Luckily, this large group will be able to use the laboratory space before the renovations start on converting the 6th floor laboratories to their new configuration.

Prof. **Ann Shinnar** obtained approval from the Committee on Instruction to offer our own lecture course on Biological Chemistry, which will start this coming spring. This means that students can take both biochemistry and molecular biology either at Barnard or at Columbia. Our courses and Columbia's are offered in different terms, allowing for scheduling flexibility. An important motivation for offering our own course is to allow students to take biochemistry lectures early, even in the spring of the second year, right after organic chemistry. This will prepare them both for biochemistry laboratory and for research.

We have shifted to a system of waste disposal which gives the department responsibility and its own budget line for waste removal and laboratory safety. We are doing a much better job than we used to in this area. We generate less waste by working on a smaller scale, students put all waste in appropriate containers after each experiment, and at the end of the year the waste is removed. We are still cleaning up various holes and corners, and we have some way to go in formal training of laboratory personnel in safety, and we haven't put all the safety and disposal instructions into the laboratory manuals and made them a routine part of the laboratory work, as we would like to, but we are moving in the right direction.

Everyone in the department is now connected to the computer network and has an e-mail address. This includes **Gauri Gupta** and **Olympia Jebejian**, who are delighted at their new computers and printers, and use them a lot. We are starting to use the Internet and the World-Wide Web to get information and news. It is really a lot of fun, but if you are not sufficiently disciplined you can spend huge chunks of time browsing.

Enrollments in chemistry continue strong in the lower level courses, right through the analytical course. Enrollment in introductory chemistry seems to be leveling off, organic chemist stays very full. Competition for admission to medical schools remains fierce, and many very capable students, including our own, are finding it very difficult to obtain a place. **Ani Bournoutian**, the Barnard advisor, tries hard to help students make realistic choices and to inform them of the many options available in the various health professions.

Usually, all students working on theses are invited to the ACS New York Section's annual Nichols Award Symposium. This year, the date conflicted with our department luncheon. Nevertheless, **Danielle Lehsten '97**, who is very interested in organic synthesis, chose to attend the symposium. The award was given to Prof. K. C. Nicolaou, an extraordinary synthetic chemist, who has recently succeeded in synthesizing taxol.

Since so many of our students now do research in the summer, we like to start the year off in September with a research symposium. We heard from 10 students. **Rebecca Begley '97** worked at Hewlett-Packard on mass spectrometry of proteins. **Sheng-Ching Wang '97** worked at Taiwan Medical University on genetic screening. **Erin Fown '96** worked at Barnard in Prof. Dan Robie's laser laboratory; they were able to observe absorption of H₂O in the atmosphere, showing the laser system was working. **Man Hoi Wong '96** worked at Barnard with Prof. Elise Megehee, on the synthesis of Rh(III) complexes with NN, PP, and SS ligands. **Li-Min Yang '97** and **Stephanie Gluck '96** both worked at Manhattan College with Prof. Vic Badding on the formation of new polymer complexes. **Camay Chiu '96** started her senior thesis work with Prof. Jym Mohler of the Barnard Biology Department, on gene expression in fruit flies. **Janet Yee '97** worked at UC Irvine on the synthesis of cyclopentadienyl metallonitrides of Ta and Nb. **Celia Chan '96** worked with Prof. Phil Ammirato of the Barnard Biology Department on the factors in plant cell differentiation, using papaya. **Dhusdee Chandswangbhuvana '96** worked at UC Irvine in molecular biology, using electron microscopy to study Alzheimer's disease.

In April, all Barnard summer research interns sponsored by the Hughes Science Pipeline Project presented their work at a symposium. Biology, chemistry, physics, and psychology were represented. Twelve students spoke, including our majors **Man Hoi Wong '96**, who presented her work with Prof. Elise Megehee, and **Stephanie Gluck '96**, who talked about her thesis research with Prof. Marco Pagnotta. **Yelena Gluzman '96**, a Biopsychology major and a Centennial Scholar, spoke on her research on brain clock cells in hamsters, done with Prof. Rae Silver of the Barnard Psychology Department. A special lecture is presented also, as part of the Hughes project, the day before the symposium, and this year all the students had the treat of listening to the redoubtable **Helen Berman '64**, Professor of Chemistry at Rutgers, describe the beautiful work done in her laboratory on the collagen triple helix structure.

On May 4th, two Barnard students gave presentations at the 44th Annual Undergraduate Research Symposium of the ACS New York Chemistry Student's Association, held this year on Staten Island. **Natalie Seiser '97** talked about her research on laser spectroscopy, done with Prof. Dan Robie, and **Man Hoi Wong '96** described her thesis work on inorganic synthesis, done with Prof. Elise Megehee.

There was a good group of graduating senior majors in 1996. Many students did research, either as a senior thesis or in a research course or in a summer program, all activities we wish strongly to encourage. At this time we still do not have a complete listing of what our graduates are doing. If you have any news or updates, write us a line and we will share it with your friends in the next newsletter!

Celia Chan, a biochemistry major, did her thesis research on the beta core fragment of human luteinizing hormone with Prof. Ruth McChesney of the Biology Department. Celia is interested in teaching high school biology or chemistry, and has applied to Teach for America. **Dhusdee Chandswangbhavana**, a biochemistry major, will be doing research at the University of California, Irvine, and will be applying to medical school or graduate school. **Camay Chiu**, a biochemistry major, did senior thesis research with Prof. Jym Mohler of the Biology Department, on the ectopic expression of the CNC gene in fruit flies. Camay is continuing her research this summer, and will be going to medical school at Downstate (SUNY Brooklyn). Camay received the Ida and John Kauderer Prize for a pre-medical chemistry or biochemistry major and the Lucy Moses Award for the pre-medical applicant most likely to provide service to the medically underserved.

Vivian Chu, who graduated with a degree in biochemistry, will start this fall at NYU dental school. Our special congratulations go to **Alaunde Copley-Woods**, who received her Barnard B.A. in October 1995. Alaunde was a biochemistry major and a Centennial Scholar. She has decided to continue her career as a flute player, and is studying at the Manhattan School of Music. Alaunde gives periodic recitals at Barnard. She also enjoyed working for the department last year as a laboratory associate in both general and organic chemistry. **Erin Fown** received her degree in chemistry, and was also a Centennial Scholar, carrying out a writing and oral history project based on the extraordinary life of her Chinese grandmother. Erin will be an economics consulting trainee this summer in White Plains and then work later in San Francisco, her home town. **Stephanie Gluck** started as an English major and finished with a degree in chemistry. She did senior thesis research with Professor Marco Pagnotta on solvent effects as a function of substrate size in a particular Diels-Alder reaction. Stephanie received American Institute of Chemists award as the outstanding senior chemistry or biochemistry major. Stephanie will begin working for Merck, and intends to apply to graduate school later on.

Jassy Jacob, who is working in Boston, finished a course at Harvard University for her Barnard degree in biochemistry, and was awarded the B.A. in May. **Jennifer Walker**, a biochemistry major, did research with Prof. Ann Shinnar on isolating bromoperoxidase from the intestines of primitive fishes. Jennifer is seeking a job teaching biology or chemistry in a public school. **Man Hoi Wong**, a chemistry major, did senior thesis research with Prof. Elise Megehee on the synthesis and characterization of new luminescent complexes of rhodium(III). Man Hoi will be entering the Ph.D. program in chemistry at NYU this fall. **Yong Ping Wu** received her degree in chemistry, and is currently searching for a job.

Our students won many awards; those given to graduating seniors are listed above, others below. All awardees were recognized at the Barnard Honors Assembly in April. **Ilana Moche '98** (an Environmental Science major) won the CRC Press First-Year Chemistry Achievement Award for her excellent work in introductory chemistry. **Danielle Lehsten '97** received the American Chemical Society's Division of Polymer Chemistry Award for outstanding work in organic chemistry. Danielle also received one of two summer research stipends from the Bernice G. Segal fund, to support her work in the laboratory of Prof. Gilbert Stork of Columbia University. **Alin Chang '97** received the American Chemical Society's Division of Analytical Chemistry Award for outstanding work in analytical chemistry. **Jane Pan '97**, a biochemistry major, received the Marie Reimer Scholarship Fund Prize, for an outstanding junior major. Jane was also one of the recipients of the Eleanor Thomas Elliot prizes, given to two juniors, based upon overall academic record, integrity, and good citizenship.

Natalie Seiser '97 was the second recipient of a summer research stipend from the Bernice G. Segal fund. Natalie is doing her senior thesis research work with Prof. Robie on laser cavity ring-down spectroscopy. Hughes summer research internships were awarded to three chemistry department students. **Sheng-Ching Wang '97** and **Li-Min Yang '97** are both working with Prof. Ann Shinnar, on two related projects. One is the identification and isolation of a bromoperoxidase enzyme and the other the search for antibiotic peptides in the intestines of primitive fishes. **Janet Yee '97** is working this summer with Prof. Lessinger on preparing iodine-containing crystalline complexes. Finally, **Jennifer Nightingale '98**, a biochemistry major, was one of three students awarded the Ucelay Spanish recitation prize!

The Chemistry Club was revived and active this year, led by **Erin Fown '96** with help from **Ahlam Abbasi '97**, **Rebecca Begley '97**, **Danielle Lehsten '97**, and **Janet Yee '97**. A trip was organized to the amber exhibit at the Museum of Natural History; wonderful Barnard chemistry T-shirts were printed and sold; study breaks were organized; and a chemistry luncheon and awards ceremony, mocking the faculty, was held. A highlight of the luncheon was a hilarious interpretation of chemistry, chemical research, and chemistry students in dance, by "Dr." Danielle Lehsten, who was once a professional ballet dancer.

We had a very well-attended departmental luncheon each semester, in the attractive Altschul atrium, with a research seminar talk following. In the fall Prof. **Ann Shinnar**, our newly appointed biochemist, was the speaker, as a way of introducing her and her research to Barnard students. Ann talked about the discovery of antibiotic peptides in animals with primitive immune systems, such as the lamprey. In her work at Magainin Pharmaceuticals, Ann found such a peptide containing a bromotryptophan amino acid, and she told us the nice story of its elucidation. Our speaker in the spring was the very dynamic Prof. **Robert Michel**, an analytical chemist at the University of Connecticut. Prof. Michel described the development of laser excited atomic fluorescence techniques for determining extremely low concentrations of metals in biological, environmental, metallurgical, and other materials. The presentation was illustrated with digital movies of the apparatus in action.

NEWS OF FACULTY AND STAFF

The past year was a busy one for Professor **Sally Chapman**. In the fall, she again had the pleasure of teaching General Chemistry I, which seems to have stopped growing, and has settled at about 140 students finishing. In many ways, this is too large to be satisfactory: smaller classes where everyone gets to know everyone else are much nicer for students and faculty, but we try to keep things from becoming impersonal. Open lines of communication are important, and this past fall Prof. Chapman experimented with using Barnard's computer network as an additional tool. Students could ask questions electronically, sending e-mail either directly to Prof. Chapman, or posting questions on the Chemistry electronic bulletin board. Answers were promptly put up for all to see. Prof. Chapman also posted answers to sample exams and comments about problem sets. (Copies of all communications were also posted with thumb tacks on real bulletin boards on the 8th floor, so that students with less convenient access to computers were not excluded.) The number of students actively exchanging information by computer was not large, but several students commented that they did find it a useful way to get a question answered quickly.

Prof. Chapman continues to devote considerable time to American Chemical Society activities. She is in her third year as Chair of the ACS Committee on Professional Training, which oversees approval of undergraduate programs in chemistry across the U.S. While not an important issue for stronger colleges and universities, CPT approval can play a pivotal role at smaller schools, where requests to administrations for more staffing and resources are often strengthened by the voice of an outside group. CPT's actions are sometimes controversial, so Prof. Chapman is not unhappy that her three-year term as Chair ends this year. She will remain a member of the committee. In December 1995, after five years, Prof. Chapman stepped down from the advisory board to the Petroleum Research Fund, which is administered by the ACS.

In November, Prof. Chapman participated in a project sponsored by AWIS, the Association for Women in Science and funded by the Sloan Foundation. The project, modelled after a successful program initiated by the American Physical Society, addresses various issues of the climate for women in academic science. Prof. Chapman was part of a team which visited two institutions to observe and make recommendations.

This was a productive year for research. Last summer, Prof. Chapman presented the thesis work of Stephanie Lau '95 at a conference on the Dynamics of Molecular Collisions. A paper on this research has been submitted. In January, Prof. Chapman left for a six-month sabbatical visit to the University at Perugia, Italy, which has a very active molecular reaction dynamics group. One of the pleasures of a sabbatical is the time which makes it possible to learn new techniques. Prof. Chapman is enjoying doing approximate quantum mechanical scattering calculations, modifying a computer program at Perugia so it can treat nonadiabatic processes, and reports that the work is going well. She gave another talk on the $O^- + HF$ project of Stephanie Lau, at a conference of the European Network on the Structure and Reactivity of Molecular Ions. The conference was in a lovely hotel overlooking bellissima Lake Garda. Prof. Chapman enjoyed weekend trips to the beautiful Umbrian and Tuscan countryside, as well as to Florence and Rome.

Prof. **Leslie Lessinger** continued as Chemistry Department chair. One of his major responsibilities this past year was planning some renovations to the space in Altschul, particularly in the chemistry department, but also ensuring that the interests of all the science departments were fairly considered. Prof. Shinnar, whose biochemistry laboratory course will be most affected by the improvements, was most helpful in this. In the fall Prof. Lessinger taught quantum chemistry, and continued with the same group of students in the spring with the third semester of physical chemistry, Methods and Applications. The section devoted to crystallography was made much more general than last year, when proteins were emphasized.

Professor Lessinger continued to serve as co-director of the Centennial Scholars Program, this past year with Professor Helene Foley, chair of the Classics Department, who returned from a sabbatical leave. The students in the program were extraordinary, as usual, and it was a very good year. Thirteen Centennial Scholars presented their projects. Several had to do with science: **Erika Daggess '96**, a biology major, presented her research on optimal outcrossing distance in the jewelweed; **Patricia Iorfino '96**, anthropology major, showed a video she had made on a paleontological dig near Lake Turkana, Kenya; and **Rosalie Ezekiel '96** described her work as an architecture major designing an outdoor museum for the archeological site at Caesarea, Israel. In general, there are still too few scientists among the Centennial Scholars, but the quality of the students is outstanding and their presentations remain varied and often amazing.

As usual, Prof. Lessinger seemed unable to refuse various service assignments in the college and elsewhere. He was on the committee that interviewed candidates for the dean of first year students, to replace Dean **Cathy Webster**, who will start this fall at NYU as a graduate student in French literature. Prof. Lessinger had an interesting and enlightening experience when he served on the Ph.D. thesis committee of a student at Teacher's College. The research was on why chemistry problems are hard, and the strategies that students use to solve them, and the knowledge they need to be successful. The student subjects were good high school students working on stoichiometry problems, especially those involving excess reagents. Do you all remember the first time you tried solving problems like that?

Professor **Marco Pagnotta** had the usual huge enrollments in lecture and laboratory, and the usual amazing enthusiasm shown by the students for this outstanding teacher. The symposium held at the end of the modern techniques laboratory course was the high point of the year. Students presented posters on the synthesis of complex natural products or other organic compounds, taken from the literature, and had to explain the steps to all the onlookers. The whole afternoon was very animated and exciting, and gave the students a chance to show off how much they had learned.

During the past year, Marco also supervised the senior thesis research of Stephanie Gluck, who investigated solvent effects on a Diels-Alder reaction as a function of substrate size. Stephanie had to synthesize many of her starting materials, then run the reactions and monitor concentrations, using NMR, and finally analyze the results. Prof. Pagnotta is an invited speaker this summer at a symposium sponsored by CEM, a maker of industrial microwave ovens. He will discuss his research on microwave effects on organic reactions.

Professor **Elise Megehee** had a busy year. In the fall she taught inorganic chemistry, now required for chemistry majors, and again had each student write a paper and give a presentation on a current topic in inorganic chemistry. Elise also continued to supervise the General Chemistry I laboratory along with Dr. Robie and Mrs. Jebejian. In the spring Elise taught the Physical Chemistry spectroscopy laboratory course and the large intermediate general chemistry course for pre-medical students.

Elise presented a poster at the Inorganic Gordon Conference in the summer of 1995. Man Hoi Wong '96 worked in Prof. Megehee's laboratory on a Hughes fellowship last summer, studying conventional and microwave synthesis of $[\text{Rh}(\text{III})(\text{bpy})_2\text{Cl}_2]\text{PF}_6$. This academic year, Man Hoi continued her research on the synthesis and purification of rhodium diimine dialkyldithiocarbamate complexes for her senior thesis project. Man Hoi presented her work at the Hughes symposium and at the ACS student research symposium. Elise congratulates Man Hoi on a job well done! Man Hoi will begin chemistry graduate work at NYU this fall.

Happy news: Prof. Elise Megehee is expecting a baby! The baby is due in late October, and Elise has decided to take a full year's leave next year. Elise thanks all the students and faculty for their support and understanding during her three weeks of needed bedrest in April.

Professor **Daniel Robie** continued to work in the introductory laboratory course this past year, with Professor Elise Megehee, Mrs. Olympia Jebejian, and a small army of associates and graders. He ran the first semester of the advanced physical chemistry laboratory course, which was made somewhat harder because the laboratory associate simply vanished in the middle of the semester, leaving Dr. Robie to carry on alone. Fortunately, the class was small, so it was possible to make it through to the end. Prof. Robie taught the second semester general chemistry lectures, as before, and started the three-semester physical chemistry lecture sequence with the course on basic thermodynamics and kinetics. This was a very large class, since this year's senior majors group is huge, and a few Columbia students were also in the class.

Beginning last summer, data has been pouring out of the cavity ring-down laser spectroscopy apparatus. Visible absorption spectra of water and of oxygen have become the main testing ground of the equipment. The absorption of visible light by air is quite weak; sunlight, viewed through several kilometers of air at one atmosphere, does not show specific colors. Nevertheless, the triply electric-dipole-forbidden absorption of O₂ is relatively easy to detect with cavity ring-down spectroscopy. The characteristics of the spectrum make it possible to measure the pressure, temperature, and wind velocity of the atmosphere; it is also used to measure cloud altitudes from outer space. Natalie Seiser '97, supported this summer on a Bernice G. Segal Fellowship, has been working with Prof. Robie since last fall on her thesis on the pressure broadening of the oxygen spectrum by nitrogen and other gases. Measurement like these are used to model the optical properties of the atmosphere. Preliminary results of this work were presented by Natalie at the ACS New York Undergraduate Research Symposium in May. Prof. Robie is looking forward to measuring the visible absorption spectrum of hydrogen, which is important in probing the atmosphere of Jupiter and interstellar space.

Prof. **Ann E. Shinnar** has set up her research lab, with the assistance of Jennifer Walker '97, Sheng-Ching Wang '97, and Li-Min Yang '97. In her previous work at Magainin Pharmaceuticals, Ann found an interesting family of peptide antibiotics in hagfish, a primitive vertebrate. These peptides have potent antimicrobial activity and an unusual amino acid, bromotryptophan. Since halogenation of indole rings is often catalyzed by peroxidases, Ann has started to hunt for a bromoperoxidase from hagfish intestine. Jennifer's preliminary protein purification results have become the basis for Li-Min's senior thesis. Sheng-Ching has started to search for other new peptide antibiotics in a related primitive fish, the lamprey eel. Peptide antibiotics from animals with primitive immune systems may play an important role in host defense.

Last year, Prof. Shinnar taught the biochemistry laboratory course to a very nice group, including one male Columbia student, and the Quantitative and Instrumental Techniques laboratory course, to cover for Professor Chapman, who was on leave in Italy. Starting in the spring of 1997, Ann will be teaching a new lecture course, Biological Chemistry. Students in our department will no longer have to rely on the Columbia biochemistry course for their major requirement, and will be able to take the Barnard department course as early as the spring of their sophomore year, right after organic chemistry. This will give them an opportunity to prepare earlier for biochemistry laboratory and for doing research, here or elsewhere.

Mrs. **Olympia Jebejian** continued to work as Director of General Chemistry laboratories. With continuing large enrollments in general chemistry, accommodating all students in the laboratory and supervising the overall setup of experiments kept her very busy. She taught two laboratory sections as well as the special problem-solving help class for this course. During the spring term, Mrs. Jebejian was in charge of overall preparation for General Chemistry II laboratory and Quantitative and Instrumental Techniques laboratory. She taught the analytical course together with Prof. Ann Shinnar, for whom it was a new course, and they both had some assistance from Su Qing Liu, our new laboratory associate.

During the summer of 1995, Mrs. Jebejian taught chemistry in two different programs for minority students. One was the Higher Education Opportunity Program (HEOP), where students participate in a rigorous six-week program in preparation for the fall semester, when they join Barnard as first-year students. The other was the Science and Technology Entry Program (STEP), in which high school students studied science on a more in-depth level than they previously had in high school. This second program concluded with a science fair, where a large academic audience enjoyed watching colorful demonstrations presented by the students and coordinated by Mrs. Jebejian. Olympia once more found teaching in these two programs rewarding and challenging. She really enjoys seeing the progress these students make, especially in the marked improvement of self-confidence and motivation towards science in general, and chemistry in particular.

Dr. Jim Carter continued to work in the Organic Chemistry Laboratories, both the introductory lab, required for pre-medical students, and the modern techniques lab, a very popular course despite its heavy demands on student time and effort. Jim's health did not allow him to take overall responsibility for the large organic laboratory course in the spring; he continues chemotherapy treatment for lung cancer, and is spending part of the summer in his vacation home on a lake in New Jersey.

Dr. Heidi Reese, who rejoined the department last year, took overall charge of the introductory organic laboratory course this spring, and has now been promoted to Director of Organic Chemistry Laboratories. Dr. Reese made some changes to streamline the introductory organic laboratory writeups, and she continued to make improvements in our procedures in the areas of laboratory safety and chemical hygiene.

Norain Yatim and **Don Estes** both resigned as laboratory associates. A new face in the department is Mrs. **Su Qing Liu**, who was trained in China, primarily as an analytical chemist. Su Qing took over the preparation work for the biochemistry laboratory in the fall, and in the spring she assisted Dr. Shinnar and Mrs. Jebejian in the Quantitative and Instrumental Techniques laboratory.

Dr. Jean Donahue remained part of the department, switching over to laboratory associate in the modern organic laboratory techniques course in the fall, a course with a very large enrollment. In the spring, Jean handled four sections of introductory organic laboratory, including the two morning sections on Wednesday and Friday that we have had to open up to accommodate all the students interested in taking the course.

Continuing their superb work in the department were **Dr. Frances Feerst**, who has limited herself to the introductory general laboratory in the fall; **Dr. Toby Berger Holtz '67**; and **Dr. Colette Levi**, both teaching introductory general and organic labs. Another great help in the introductory general chemistry laboratory and the organic laboratory was **Alaunde Copley-Woods '95**, who just received her bichemistry degree at Barnard in October and remains in New York to study the flute. Alaunde stepped in when Colette Levi was taken ill in the fall, as did Frances Feerst and Toby Berger Holtz.

Dr. Meena Rao was a tremendous asset to the department again last year, working in the introductory general chemistry laboratory and running the second semester general chemistry laboratory together with Mrs. Jebejian. Meena will be teaching the intermediate general chemistry course for pre-medical students next spring, when Prof. Megehee will be on leave.

Please note that we are often looking for new laboratory associates. If you are in the greater New York City area, and would be interested in a part-time teaching job in the chemistry department, please tell us. We would be happy to keep your name on file. These jobs are often available on short notice. Part-time academic jobs do not pay very much for the skill and dedication that our laboratory associates typically demonstrate, unfortunately; we can offer a congenial department and excellent students, though!

Mrs. **Gauri Gupta** tried her hand at working as a laboratory associate, as well as doing her usual splendid job administering our purchases, budgets, student work, and keeping the organic stockroom orderly. She enjoyed the teaching very much. This year Gauri is working full-time for the department, with her job a mixture of administration, laboratory preparation, and teaching associate in the introductory and organic laboratories. Gauri's baby arrived, as promised here last year, and is a delightful little boy.

Ms. **Gwen Buchanan** continues her good work as faculty secretary for the science departments housed in Altschul, dealing ably, among other things, with all the correspondence involved in searches. This past year the mathematics department hired two new people, and chemistry hired a visiting assistant professor, Dr. **Jill Rehmman**, to cover for Prof. Elise Megehee, who will be on maternity leave next year. Jill obtained her Ph.D. degree at Columbia, working with Prof. Jacqueline Barton, and will do an excellent job next year, we are sure, teaching inorganic chemistry and physical chemistry, with biophysical applications.

NEWS OF FORMER FACULTY AND STAFF

Shelley Weinstock wrote in and sent us her correct e-mail address: weinstocks@apollo.montclair.edu. She reports that she has set up an organ culture lab, that her research is taking off, and that she has found some good students to work with her. Shelley and Paul have a spacious new house in a beautiful spot in New Jersey. Little Kate is walking and talking, and Max is growing up.

Grace King continues to enjoy retirement, but maintains her interest in the department. Grace was called upon and volunteered to help out the college with the preparations for and administration of graduation in May, because some of the clerical and support staff who usually do that work were on strike.

Steve DeMeo published a very nice article in the *Journal of Chemical Education* **72**, 836-839 (1995), on the synthesis and decomposition of zinc iodide as model reactions for investigating chemical change and stoichiometry in the introductory laboratory.

BERNICE G. SEGAL MEMORIAL FUND

Prof. Segal established a fund at the college in her lifetime, and assigned a share of the proceeds of her textbook to it. She believed strongly that undergraduate summer research was a wonderful opportunity, and was concerned that financial need sometimes kept students from availing themselves of this chance. The fund was set up to provide generous summer research fellowships at Barnard for particularly able students, first in chemistry, but also, when funds are sufficient, in other sciences. After her death, the Bernice G. Segal Memorial Fund was created. Last summer **Jane Pan '97** was the Segal intern, working with Professor Jeanne Poindexter of the Biology Department on electroporation of cells. This summer two students are supported, **Danielle Lehsten '97**, working on organic synthesis in the laboratory of Professor Gilbert Stork of Columbia, and **Natalie Seiser '97**, working on laser spectroscopy with Professor Robie.

The Bernice G. Segal fund continues to grow. The department and the students are deeply grateful to those of you who have helped to create these opportunities for our outstanding students. If you wish to contribute, you may do so by sending a check to the Barnard Development Office, payable to Barnard College. *Please indicate that your gift is specifically for the Bernice G. Segal Memorial Fund.*

EDWARD J. KING MEMORIAL FUND

Established to honor Professor Edward J. King, chair of the Chemistry Department from 1960 until his death in 1973, the Edward J. King fund provides research assistance for non-tenured Barnard faculty in any field. This past year, a grant of \$2,385 was provided to Assistant Professor Brian Morton, a newly hired faculty member in Biology, for his project on the evolution of the *adh* gene family. Research support is increasingly hard to find, so this fund can be critical in the career of a young scholar. It is a fine tribute to Prof. King that the fund in his memory plays an important role in the intellectual life of the college.

Many worthy projects have been supported in recent years, and the needs are expanding, so the fund could use a financial boost. Dr. Grace King, the department, and the whole Barnard faculty are grateful to all who have contributed. If you wish to make a donation to this fund, you may do so by sending a check to the Barnard Development Office, payable to Barnard College. *Please indicate that your gift is specifically for the Edward J. King Memorial Fund.*

ALUMNAE NEWS

We rely mostly on you to provide us with news about your doings, but we also find out about you from newspapers and journals, friends and acquaintances, accidental circumstances and happy chances. If you write to us you are guaranteed to get in the newsletter! If anything we report is incorrect, please accept our apologies, and send us the right information so we can correct it in the next newsletter. For those who like electronic mail, the Barnard Chemistry Department has entered the electronic age and you can reach Professor Lessinger at llessinger@barnard.columbia.edu. Reach us any way you like, but let us know about yourself and the alumnae you keep in touch with.

Classes of 1990-1995

Millicent King '95 is at Teachers College, getting a Masters degree in Secondary Science Education. She plans to teach in Atlanta, Georgia. Millie also writes that she has decided to apply to osteopathic medical schools this fall.

Linda Lam '95 writes, in a gracious note, that she is spending the summer at home in New Jersey taking driving lessons, working in a Japanese restaurant on Sundays, and leading Bible study for youth on Thursdays. This fall Linda will start osteopathic medical school, and has obtained a loan to carry her through the first year.

Rebecca Lipsitz '95 started the Ph.D. program in chemistry at UC San Diego. She wrote to say that the people are very friendly and the research is very impressive. She still prefers the pace and intensity of New York, but we think she can get used to San Diego. E-mail address: rlipsitz@ucsd.edu .

Nancy Lee '91 sent her regards. Nancy is coming to Columbia College of Physicians and Surgeons to study radiation oncology.

Classes of the 1980s

Wendy Pollack Reader '89 married Robert Reader, a systems analyst, in June 1994. Wendy received a J.D. from Fordham University School of Law in May 1995 and is presently working in the patent department of Boehringer Ingelheim in Connecticut.

Virginia Estevez '87 was driving in Manhattan in her sporty little black car and saw Professor Lessinger walking on the street. She shouted, and then we chatted. Virginia reported that she was working for Sandoz, and was quite happy. Virginia said that **Patricia Soteropoulos '87** also worked at Sandoz.

Dawn Cohen '86 dropped by while attending her 10th reunion, in May. Dawn had been teaching computer science at Rutgers, and she told us she just got a new job with Wyeth-Ayerst Research in Princeton, as a systems analyst working on pharmaceutical research and drug discovery.

Karen I. Goldberg '83 has accepted a faculty position in Chemistry at the University of Washington, moving from Illinois State University, where she had tenure. Karen says "I found out after being on a chemistry department faculty for a while that it is actually helpful to know where alums end up." Indeed it is, so everyone else out there should let us know where they are and what they are doing. We in the department are all very interested, and so are your fellow alumnae, both old and new.

Georgia Arvanitis '82, Professor of Chemistry at Trenton State College, received a Cottrell College Science Award of \$25,440 for work on the synthesis of metal complexes of known DNA-binding molecules.

Linda Peteanu '82 met Sally Chapman at the ACS meeting, and they discussed teaching. Linda presented a poster on applications of Stark spectroscopy to the study of excited-state proton transfer reactions.

Classes before 1980

Joy Cooke Andrews '77 writes with a brief biography. After getting her Barnard degree in biochemistry, she worked in a biochemistry laboratory, then in an environmental analytical laboratory. She married Floyd Andrews (Columbia 1977) in 1981 and has two children, Maxwell and Janine. Joy entered the Ph.D. program at UC Berkeley in 1989, studied chemical physics with Prof. William Lester, Jr., for three years, and then worked on a biophysical chemistry problem with Prof. Kenneth Sauer. Her dissertation work was part of the investigation of the structure of the manganese tetramer that evolves oxygen in photosynthesis. She carried out X-ray absorption spectroscopy and electron paramagnetic resonance studies of oriented photosystem II particles in spinach. Joy finished her Ph.D. degree in August 1995. Her interest in teaching has flourished, and she participated in a successful grant proposal to NSF for undergraduate chemistry curriculum reform. Dr. Andrews will be joining the faculty at California State University, Hayward, as an Assistant Professor in the fall of 1996. She will teach courses in environmental chemistry as well as analytical and physical chemistry. Joy is especially interested in corresponding with anyone doing undergraduate curriculum reform and/or environmental chemistry teaching and research.

Judith Herzfeld '67 is now chair of the Brandeis Chemistry Department. Sally Chapman met Judith at the ACS meeting, and Prof. Herzfeld said she had seen Barnard's President Judith Shapiro at the inauguration of the new President of Brandeis University.

Helen M. Berman '64 visited Barnard again to deliver a wonderful lecture for students on the triple helical structure of collagen, as part of the Hughes Science Pipeline Project research symposium.

Eleanor H. Edelstein '62 sent us an e-mail letter with a capsule biography. She got an MA in high school science from Teachers College, and taught in junior high school on Long Island for three years. She then worked for 25 years for IBM as a programmer, systems engineer, manager, and new product developer. Eleanor is currently retired, living in Santa Fe, New Mexico, and doing volunteer work. She invites anyone who is out that way to contact her. She comes to reunions every five years and plans to attend in 1997.

Ruth Lewin Sime '60 has published a biography of Lise Meitner, and the book has been very well received. (See the review in C&ENews July 8, 1996.) Prof. Sime teaches chemistry at Sacramento City College.

Judith Goldstein Levin '55 writes to say how much things have changed since she was a chemistry major. She is still at NIH, heading a research group in the Laboratory of Molecular Genetics, NICHD. Her research concerns retroviral replication; the current focus is on structure-function studies of reverse transcriptase. Dr. Levin writes "It is an exciting time to be in this field, and one can only hope that one's research efforts will in some way contribute to the efforts to fight AIDS." Dr. Levin's older son Joshua received a Ph.D. in biology from MIT and is a postdoctoral fellow at Caltech, doing research on flower development genes in Arabidopsis. Younger son Daniel is a Ph.D. candidate in organizational behavior at Northwestern.

Marilyn R. Loeb '51, Ph.D. in biochemistry from the University of Pennsylvania (1958), wrote to say she enjoys the newsletter, still values the education she received from the chemistry department, and well remembers the dedicated teaching of Helen Downes, Emma Stecher, Ed King, and Grace King. Dr. Loeb sent us two abstracts of recent work, one on specificity problems with the ELISA for serotype-specific *Streptococcus pneumoniae* (Spn) antibodies, to appear in Pediatric Research, the other an article in the Journal of Bacteriology, June 1995, on ferrochelatase activity and protoporphyrin IX utilization in *Haemophilus influenzae*. The latter research was supported on a grant from the National Institute for Allergy and Infectious Diseases.

Gertrude F. Neumark '48, Professor of Materials Science at Columbia's Henry Krum School of Mines, called our attention to an interesting article she co-authored on blue-green diode lasers (Physics Today, June 1994, 26-32). These short-wavelength, wide-bandgap, II-VI diode lasers have been developed by using a material system based on ZnSe.

Doris Jane Wolf Escher '38, Professor Emeritus, Medicine, at the Albert Einstein College of Medicine, wrote a fascinating letter. She was in Teacher's College in the mid 1930s, and came to Barnard to study chemistry, which she wanted to teach at the high school level. She was burning with the desire to do research, and was intensely irritated that the gorgeous chemistry laboratory in Milbank was sitting empty most of the week. She switched to medicine, and did end up teaching, but at a very different level. Though past retirement, she still actively works and teaches at her hospital, and enjoys it. Reading the newsletter convinces her that both teaching and research are now important to the Barnard faculty, as indeed they are. It appears to Dr. Escher that "life in the department has accelerated and become more interesting. I wish you well, and trust that there is never a vacant space in any of your laboratories."

Edith K. Dean '30, age 86, wrote us a lovely letter from Chambersburg, PA. She is proud of the successes of Barnard's alumnae, and recounts some of her own history. After graduation she took a position in bacteriology at Bellevue Hospital, making solutions, and taking trolley trips to the slaughterhouse for beef hearts. Her work was in the areas of pneumonia testing and arthritis. After six years, she retired to raise a family. Twenty five years later, at age 52, she tried to re-enter the work force, and faced great difficulty. She was finally offered a post working in the Rheumatology Department at the University of Pennsylvania, and worked happily for six years, completing two studies that were presented at medical meetings. Edith is still a great fan of chemistry, and of Barnard chemists, both the famous and the unsung, wherever they apply their talents. She writes "It takes chemistry to make a good apple pie or a vat of good wine. Kudos to the newsletter! May it thrive for a long time." We gratefully accept the compliment, and heartily concur.

Thanks again for all your letters, cards, phone calls, e-mail, and especially visits. Keep in touch.

Yours very truly,

Leslie Lessinger
Chair, Chemistry Department

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To: